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<110> Xenon Genetics Inc.

<120> Juvenile Hemochromatosis Gene (HFE2A), Expression Products and Uses Thereof

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<150> 60/461,615

<151> 2003-04-09

<150> 60/462,867

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<151> 2003-07-18

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<170> PatentIn version 3.0

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Ala Gly Gln Leu Ser Phe Ser Ile Lys Val Ala Glu Asp Val Ala Met
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Ala Phe Ser Ala Glu Gln Asp Leu Gln Leu Cys Val Gly Gly Cys Pro
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Pro Ser Gln Arg Leu Ser Arg Ser Glu Arg Asn Arg Arg Gly Ala Ile
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Gly Asp Pro Asn Phe Thr Val Ala Ala Gln Ala Ala Leu Glu Asp Ala		
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Arg Ala Phe Leu Pro Asp Leu Glu Lys Leu His Leu Phe Pro Ser Asp		
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 Met Gly Met Gly Arg Gly Ala Gly Arg Ser Ala Leu Gly Phe Trp Pro
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 Thr Leu Ala Phe Leu Leu Cys Ser Phe Pro Ala Ala Thr Ser Pro Cys
 35 40 45
 Lys Ile Leu Lys Cys Asn Ser Glu Phe Trp Ser Ala Thr Ser Gly Ser
 50 55 60
 His Ala Pro Ala Ser Asp Asp Thr Pro Glu Phe Cys Ala Ala Leu Arg
 65 70 75 80

Ser Tyr Ala Leu Cys Thr Arg Arg Thr Ala Arg Thr Cys Arg Gly Asp
 85 90 95
 Leu Ala Tyr His Ser Ala Val His Gly Ile Glu Asp Leu Met Ser Gln
 100 105 110
 His Asn Cys Ser Lys Asp Gly Pro Thr Ser Gln Pro Arg Leu Arg Thr
 115 120 125
 Leu Pro Pro Ala Gly Asp Ser Gln Glu Arg Ser Asp Ser Pro Glu Ile
 130 135 140
 Cys His Tyr Glu Lys Ser Phe His Lys His Ser Ala Thr Pro Asn Tyr
 145 150 155 160
 Thr His Cys Gly Leu Phe Gly Asp Pro His Leu Arg Thr Phe Thr Asp
 165 170 175
 Arg Phe Gln Thr Cys Lys Val Gln Gly Ala Trp Pro Leu Ile Asp Asn
 180 185 190
 Asn Tyr Leu Asn Val Gln Ala Thr Asn Thr Pro Val Leu Pro Gly Ser
 195 200 205
 Ala Ala Thr Ala Thr Ser Lys Leu Thr Ile Ile Phe Lys Asn Phe Gln
 210 215 220
 Glu Cys Val Asp Gln Lys Val Tyr Gln Ala Glu Met Asp Glu Leu Pro
 225 230 235 240
 Ala Ala Phe Val Asp Gly Ser Lys Asn Gly Gly Asp Lys His Gly Ala
 245 250 255
 Asn Ser Leu Lys Ile Thr Glu Lys Val Ser Gly Gln His Val Glu Ile
 260 265 270
 Gln Ala Lys Tyr Ile Gly Thr Thr Ile Val Val Arg Gln Val Gly Arg
 275 280 285
 Tyr Leu Thr Phe Ala Val Arg Met Pro Glu Glu Val Val Asn Ala Val
 290 295 300
 Glu Asp Trp Asp Ser Gln Gly Leu Tyr Leu Cys Leu Arg Gly Cys Pro
 305 310 315 320
 Leu Asn Gln Gln Ile Asp Phe Gln Ala Phe His Thr Asn Ala Glu Gly
 325 330 335
 Thr Gly Ala Arg Arg Leu Ala Ala Ala Ser Pro Ala Pro Thr Ala Pro
 340 345 350
 Glu Thr Phe Pro Tyr Glu Thr Ala Val Ala Lys Cys Lys Glu Lys Leu
 355 360 365
 Pro Val Glu Asp Leu Tyr Tyr Gln Ala Cys Val Phe Asp Leu Leu Thr
 370 375 380
 Thr Gly Asp Val Asn Phe Thr Leu Ala Ala Tyr Tyr Ala Leu Glu Asp

Met	Gly	Gln	Ser	Pro	Ser	Pro	Arg	Ser	Pro	His	Gly	Ser	Pro	Pro	Thr	1	5	10	15
Leu	Ser	Thr	Leu	Thr	Leu	Leu	Leu	Leu	Leu	Cys	Gly	Gln	Ala	His	Ser	20	25	30	
Gln	Cys	Lys	Ile	Leu	Arg	Cys	Asn	Ala	Glu	Tyr	Val	Ser	Ser	Thr	Leu	35	40	45	
Ser	Leu	Arg	Gly	Gly	Gly	Ser	Pro	Asp	Thr	Pro	Arg	Gly	Gly	Gly	Arg	50	55	60	
Gly	Gly	Leu	Ala	Ser	Gly	Gly	Leu	Cys	Arg	Ala	Leu	Arg	Ser	Tyr	Ala	65	70	75	80
Leu	Cys	Thr	Arg	Arg	Thr	Ala	Arg	Thr	Cys	Arg	Gly	Asp	Leu	Ala	Phe	85	90	95	
His	Ser	Ala	Val	His	Gly	Ile	Glu	Asp	Leu	Met	Ile	Gln	His	Asn	Cys	100	105	110	
Ser	Arg	Gln	Gly	Pro	Thr	Ala	Pro	Pro	Pro	Ala	Arg	Gly	Pro	Ala	Leu	115	120	125	
Pro	Gly	Ala	Gly	Pro	Ala	Pro	Leu	Thr	Pro	Asp	Pro	Cys	Asp	Tyr	Glu	130	135	140	
Ala	Arg	Phe	Ser	Arg	Leu	His	Gly	Arg	Ala	Pro	Gly	Phe	Leu	His	Cys	145	150	155	160
Ala	Ser	Phe	Gly	Asp	Pro	His	Val	Arg	Ser	Phe	His	Asn	Gln	Phe	His	165	170	175	
Thr	Cys	Arg	Val	Gln	Gly	Ala	Trp	Pro	Leu	Leu	Asp	Asn	Asp	Phe	Leu	180	185	190	
Phe	Val	Gln	Ala	Thr	Ser	Ser	Pro	Val	Ser	Ser	Gly	Ala	Asn	Ala	Thr	195	200	205	
Thr	Ile	Arg	Lys	Ile	Thr	Ile	Ile	Phe	Lys	Asn	Met	Gln	Glu	Cys	Ile	210	215	220	
Asp	Gln	Lys	Val	Tyr	Gln	Ala	Glu	Val	Asp	Asn	Leu	Pro	Ala	Ala	Phe	225	230	235	240
Glu	Asp	Gly	Ser	Ile	Asn	Gly	Gly	Asp	Arg	Pro	Gly	Gly	Ser	Ser	Leu	245	250	255	
Ser	Ile	Gln	Thr	Ala	Asn	Leu	Gly	Ser	His	Val	Glu	Ile	Arg	Ala	Ala	260	265	270	
Tyr	Ile	Gly	Thr	Thr	Ile	Ile	Ile	Arg	Gln	Thr	Ala	Gly	Gln	Leu	Ser	275	280	285	
Phe	Ser	Ile	Arg	Val	Ala	Glu	Asp	Val	Ala	Arg	Ala	Phe	Ser	Ala	Glu	290	295	300	
Gln	Asp	Leu	Gln	Leu	Cys	Val	Gly	Gly	Cys	Pro	Pro	Ser	Gln	Arg	Leu	305	310	315	320

Ser Arg Ser Glu Arg Asn Arg Arg Gly Ala Ile Ala Ile Asp Thr Ala
 325 330 335
 Arg Arg Leu Cys Lys Glu Gly Leu Pro Val Glu Asp Ala Tyr Phe Gln
 340 345 350
 Ser Cys Val Phe Asp Val Ser Val Ser Gly Asp Pro Asn Phe Thr Val
 355 360 365
 Ala Ala Gln Thr Ala Leu Asp Asp Ala Arg Ile Phe Leu Thr Asp Leu
 370 375 380
 Glu Asn Leu His Leu Phe Pro Ser Asp Ala Gly Pro Pro Leu Ser Pro
 385 390 395 400
 Ala Ile Cys Leu Val Pro Leu Leu Ser Ala Leu Phe Val Leu Trp Leu
 405 410 415
 Cys Phe Ser Lys
 420

<210> 26
 <211> 422
 <212> PRT
 <213> Rattus rattus

<400> 26
 Met Gly Asp Arg Gly Arg Ser Pro Ser Leu Arg Ser Pro His Gly Ser
 1 5 10 15
 Pro Pro Thr Leu Ser Thr Leu Thr Leu Leu Leu Leu Cys Gly Gln
 20 25 30
 Ala His Ser Gln Cys Lys Ile Leu Arg Cys Asn Ala Glu Tyr Val Ser
 35 40 45
 Phe Thr Leu Ser Leu Arg Gly Gly Gly Ser Pro Asp Thr Pro Arg Gly
 50 55 60
 Gly Gly Arg Gly Gly Pro Ala Ser Gly Gly Leu Cys Arg Ala Leu Arg
 65 70 75 80
 Ser Tyr Ala Leu Cys Thr Arg Arg Thr Ala Arg Thr Cys Arg Gly Asp
 85 90 95
 Leu Ala Phe His Ser Ala Val His Gly Ile Glu Asp Leu Met Ile Gln
 100 105 110
 His Asn Cys Ser Arg Gln Gly Pro Thr Ala Ser Pro Pro Ala Arg Gly
 115 120 125
 Pro Ala Leu Pro Gly Ala Gly Pro Ala Pro Leu Thr Pro Asp Pro Cys
 130 135 140
 Asp Tyr Glu Ala Arg Phe Ser Arg Leu His Gly Arg Thr Pro Gly Phe
 145 150 155 160

Leu His Cys Ala Ser Phe Gly Asp Pro His Val Arg Ser Phe His Asn
 165 170 175
 His Phe His Thr Cys Arg Val Gln Gly Ala Trp Pro Leu Leu Asp Asn
 180 185 190
 Asp Phe Leu Phe Val Gln Ala Thr Ser Ser Pro Val Ala Ser Gly Ala
 195 200 205
 Asn Ala Thr Thr Ile Arg Lys Ile Thr Ile Ile Phe Lys Asn Met Gln
 210 215 220
 Glu Cys Ile Asp Gln Lys Val Tyr Gln Ala Glu Val Asp Asn Leu Pro
 225 230 235 240
 Ala Ala Phe Glu Asp Gly Ser Val Asn Gly Gly Asp Arg Pro Gly Gly
 245 250 255
 Ser Ser Leu Ser Ile Gln Thr Ala Asn Leu Gly Ser His Val Glu Ile
 260 265 270
 Arg Ala Ala Tyr Ile Gly Thr Thr Ile Ile Val Arg Gln Thr Ala Gly
 275 280 285
 Gln Leu Ser Phe Ser Ile Arg Val Ala Glu Asp Val Ala Arg Ala Phe
 290 295 300
 Ser Ala Glu Gln Asp Leu Gln Leu Cys Val Gly Gly Cys Pro Pro Ser
 305 310 315 320
 Gln Arg Leu Ser Arg Ser Glu Arg Asn Arg Arg Gly Ala Ile Ala Ile
 325 330 335
 Asp Thr Ala Arg Arg Leu Cys Lys Glu Gly Leu Pro Val Glu Asp Ala
 340 345 350
 Tyr Phe Gln Ser Cys Val Phe Asp Val Ser Val Ser Gly Asp Pro Asn
 355 360 365
 Phe Thr Val Ala Ala Gln Ser Ala Leu Asp Asp Ala Arg Val Phe Leu
 370 375 380
 Thr Asp Leu Glu Asn Leu His Leu Phe Pro Val Asp Ala Gly Pro Pro
 385 390 395 400
 Leu Ser Pro Ala Thr Cys Leu Val Arg Leu Leu Ser Val Leu Phe Val
 405 410 415
 Leu Trp Phe Cys Ile Gln
 420

<210> 27
 <211> 366
 <212> PRT
 <213> Fugu

<400> 27
 Ala Ser Cys Arg Ile Leu Arg Cys Asn Ser Asp Phe Val Ala Ala Thr

1	5	10	15
Leu Asp Leu Gly Ser Ser Ala Gly Ala Gly Gly Gly Ala Pro Leu Ser	20	25	30
Arg Glu Ala Ala Asn Ala Glu Tyr Cys Arg Ala Leu His Ser Tyr Ser	35	40	45
Thr Cys Thr Lys Arg Met Ala Arg Pro Cys Arg Gly Asp Leu Ala Tyr	50	55	60
His Ser Ala Val Gln Gly Ile Glu Asp Leu Leu Ile Gln Tyr Arg Cys	65	70	75
Pro Leu Ala Gly Pro Thr Ala Gln Pro Arg Pro Leu Pro Pro Leu Leu	85	90	95
Ser Gly Asp Val Cys Leu Tyr Asp Arg Arg Leu Ala Ala Ala Glu Ala	100	105	110
Pro Gln Pro Asp Tyr Leu His Cys Gly Val Phe Gly Asp Pro His Ile	115	120	125
Arg Thr Phe Asn Asn Asp Phe His Thr Cys Ala Val Gln Gly Ala Trp	130	135	140
Pro Leu Ile Asp Asn Asp Phe Leu Tyr Val Gln Ala Thr Ser Ser Pro	145	150	155
Thr Arg Arg Gly Thr Gln Ala Thr Met Leu Thr Lys Ile Thr Val Ile	165	170	175
Val Lys Ser Trp Arg His Cys Val Asp Gln Gln Leu Tyr Gln Ala Glu	180	185	190
Leu Asp Asp Val Pro Met Ala Phe Ala Asp Gly Ser Val Val Ser Gly	195	200	205
Glu Arg Arg Gly Gln His Thr Leu Ala Ile Thr Gln Ser Pro Gly Arg	210	215	220
His Ala Glu Ile Arg Ala Ala His Ile Ala Thr Val Ala Ser Gly Gln	225	230	235
Ser Gly Arg Ser Leu Ser Leu Ser Val Tyr Ser Pro Arg Ser Val Val	245	250	255
Glu Ala Phe Gly Pro Glu Gln Asp Leu Gln Leu Cys Met Trp Gly Cys	260	265	270
Pro Ala Ser Gln Lys Leu Ser Thr Pro Pro Pro Thr Ser Ser Thr Phe	275	280	285
Ser Ala Ala Val Leu Ala His Cys Asp Ala Leu Leu Pro Val Arg Asp	290	295	300
Val Tyr His Gln Ala Cys Ile Phe Asp Leu Ile Thr Ser Gly Asp Leu	305	310	315
			320

Asn Ser Ser Gly Ala Ala Ile Ser Ala Leu Gln Asp Ala Gln Lys Leu
325 330 335

Ile Ser Asp Pro Lys Arg Val His Leu Leu Ser Pro Thr Ser Ala Ala
340 345 350

Gln Arg Glu Asp His Leu Cys Leu Leu Leu Leu Leu Ser
355 360 365

<210> 28

<211> 432

<212> PRT

<213> Chicken

<400> 28

Met Gly Arg Gly Ala Gly Ser Thr Ala Leu Gly Leu Phe Gln Ile Leu
1 5 10 15

Pro Val Phe Leu Cys Ile Phe Pro Pro Val Thr Ser Pro Cys Lys Ile
20 25 30

Leu Lys Cys Asn Ser Glu Phe Trp Ala Ala Thr Ser Gly Ser His His
35 40 45

Leu Gly Ala Glu Glu Thr Pro Glu Phe Cys Thr Ala Leu Arg Ala Tyr
50 55 60

Ala His Cys Thr Arg Arg Thr Ala Arg Thr Cys Arg Gly Asp Leu Ala
65 70 75 80

Tyr His Ser Ala Val His Gly Ile Asp Asp Leu Met Val Gln His Asn
85 90 95

Cys Ser Lys Asp Gly Pro Thr Ser Gln Pro Arg Leu Arg Thr Leu Pro
100 105 110

Pro Gly Asp Ser Gln Glu Arg Ser Asp Ser Pro Glu Ile Cys His Tyr
115 120 125

Glu Lys Ser Phe His Lys His Ser Ala Ala Pro Asn Tyr Thr His Cys
130 135 140

Gly Leu Phe Gly Asp Pro His Leu Arg Thr Phe Thr Asp Thr Phe Gln
145 150 155 160

Thr Cys Lys Val Gln Gly Ala Trp Pro Leu Ile Asp Asn Asn Tyr Leu
165 170 175

Asn Val Gln Val Thr Asn Thr Pro Val Leu Pro Gly Ser Ser Ala Thr
180 185 190

Ala Thr Ser Lys Leu Thr Ile Ile Phe Lys Ser Phe Gln Glu Cys Val
195 200 205

Glu Gln Lys Val Tyr Gln Ala Glu Met Asp Glu Leu Pro Ala Ala Phe
210 215 220

Ala Asp Gly Ser Lys Asn Gly Gly Asp Lys His Gly Ala Asn Ser Leu

225		230		235		240
Lys Ile Thr Glu Lys Val Ser Gly Gln His Ile Glu Ile Gln Ala Lys						
	245			250		255
Tyr Ile Gly Thr Thr Ile Val Val Arg Gln Val Gly Arg Tyr Leu Thr						
	260			265		270
Phe Ala Val Arg Met Pro Glu Glu Val Val Asn Ala Val Glu Asp Arg						
	275			280		285
Asp Ser Gln Gly Leu Tyr Leu Cys Leu Arg Gly Cys Pro Leu Asn Gln						
	290			295		300
Gln Ile Asp Phe Gln Thr Phe Arg Leu Ala Gln Ala Ala Glu Gly Arg						
305		310		315		320
Ala Arg Arg Lys Gly Pro Ser Leu Pro Ala Pro Pro Glu Ala Phe Thr						
	325			330		335
Tyr Glu Ser Ala Thr Ala Lys Cys Arg Glu Lys Leu Pro Val Glu Asp						
	340			345		350
Leu Tyr Phe Gln Ser Cys Val Phe Asp Leu Leu Thr Thr Gly Asp Val						
	355			360		365
Asn Phe Met Leu Ala Ala Tyr Tyr Ala Phe Glu Asp Val Lys Met Leu						
	370			375		380
His Ser Asn Lys Asp Lys Leu His Leu Tyr Glu Arg Thr Arg Ala Leu						
385		390		395		400
Ala Pro Gly Asn Ala Ala Pro Ser Glu His Pro Trp Ala Leu Pro Ala						
	405			410		415
Leu Trp Val Ala Leu Leu Ser Leu Ser Gln Cys Trp Leu Gly Leu Leu						
	420			425		430

<210> 29
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Polynucleotide replication primer

<400> 29
 tccaagtcag cgactctctc g

21

<210> 30
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Polynucleotide replication primer

<400> 30
 tccaagtcag tgactctctc g 21

<210> 31
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene

<400> 31
 acctgccgcg gggacctcgc c 21

<210> 32
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene containing polymorphism

<400> 32
 acctgccgcg tggacctcgc c 21

<210> 33
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene

<400> 33
 gcctgggaaa cctggctgga t 21

<210> 34
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene containing polymorphism

<400> 34
 gcctgggaaa gctggctgga t 21

<210> 35
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene

<400> 35
 tcccttctgt ctttagctca t 21

<210> 36
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene containing polymorphism

<400> 36
 tcccttctgt gtttagctca t 21

<210> 37
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene

<400> 37
 gaggaggagg ccgggggtgga 20

<210> 38
 <211> 23
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene containing polymorphism

<400> 38
 gaggaggagg aggccggggt gga 23

<210> 39
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene

<400> 39
 gcctccctgc cccggaccct t 21

<210> 40
 <211> 21
 <212> DNA
 <213> Artificial

<220>

<223> Fragment of human HFE2A gene containing polymorphism

<400> 40
gcctccctgc gccggaccct t 21

<210> 41
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Fragment of human HFE2A gene

<400> 41
atggtcgtcc cccggggttc t 21

<210> 42
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Fragment of human HFE2A gene containing polymorphism

<400> 42
atggtcgtcc accggggttc t 21

<210> 43
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Fragment of human HFE2A gene

<400> 43
cgtcccccg ggttcttgca t 21

<210> 44
<211> 21
<212> DNA
<213> Artificial

<220>
<223> Fragment of human HFE2A gene containing polymorphism

<400> 44
cgtcccccg cgttcttgca t 21

<210> 45
<211> 21
<212> DNA
<213> Artificial

<220>
 <223> Fragment of human HFE2A gene

 <400> 45
 gtccaaggag cttggcctct a 21

 <210> 46
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene containing polymorphism

 <400> 46
 gtccaaggag attggcctct a 21

 <210> 47
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene

 <400> 47
 ccccatggc gttgggggcc a 21

 <210> 48
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene containing polymorphism

 <400> 48
 ccccatggc tttgggggcc a 21

 <210> 49
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene

 <400> 49
 taagaacatg caggaatgca t 21

 <210> 50
 <211> 21
 <212> DNA
 <213> Artificial

<220>
 <223> Fragment of human HFE2A gene containing polymorphism

 <400> 50
 taagaacatg aaggaatgca t 21

 <210> 51
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene

 <400> 51
 gccttctcag ctgaacagga c 21

 <210> 52
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene containing polymorphism

 <400> 52
 gccttctcag gtgaacagga c 21

 <210> 53
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene

 <400> 53
 agatgctggg gttcctcttt c 21

 <210> 54
 <211> 21
 <212> DNA
 <213> Artificial

 <220>
 <223> Fragment of human HFE2A gene containing polymorphism

 <400> 54
 agatgctggg attcctcttt c 21

 <210> 55
 <211> 20
 <212> DNA
 <213> Artificial

<220>
 <223> Forward replication primer

 <400> 55
 cacttgagcc caggaatttg 20

 <210> 56
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> Reverse replication primer

 <400> 56
 gactcactgc agccttgacc 20

 <210> 57
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> Forward replication primer

 <400> 57
 gtgtgctaca agtttgccga at 22

 <210> 58
 <211> 20
 <212> DNA
 <213> Artificial

 <220>
 <223> Reverse replication primer

 <400> 58
 gcttgaaact gggagttgga 20

 <210> 59
 <211> 22
 <212> DNA
 <213> Artificial

 <220>
 <223> Forward replication primer

 <400> 59
 gggaaatggt cccataattc ct 22

 <210> 60
 <211> 19
 <212> DNA
 <213> Artificial

<220>
<223> Reverse replication primer

<400> 60
cgccctgccca atatgttct

19

<210> 61
<211> 22
<212> DNA
<213> Artificial

<220>
<223> Forward replication primer

<400> 61
ggtacttagc ctcgaaatga ga

22

<210> 62
<211> 20
<212> DNA
<213> Artificial

<220>
<223> Reverse replication primer

<400> 62
gtgtcacaca actggttggt

20